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ABSTRACT

A retrospective self-assessment used with 22 county Extension agents from western Washington who had participated in a three-day inservice education program in agronomy was evaluated. Each participant was asked to draw an S on a Likert-type scale to indicate where each person started at the beginning of the workshop and an N where they perceived themselves to have ended; to list a workshop activity that helped the person move from S to N; and to suggest a learning activity that would help the person move from N to 100 percent achievement of that objective. Seven reasons were found for judging the assessments trustworthy: (1) the average change score was lower than the average assessment of before-workshop competence; (2) the range and pattern of pre-assessment fit the levels of formal education participants had in the content of the workshop; (3) the range of post-assessments reflected the varying job expectations among the participants; (4) change across five workshop objectives correlated with time allocated to each objective; (5) responses to "what helped" were substantive, relevant to the content of the workshop, appropriate to the objectives, and accurate; (6) suggestions for "what next" were also substantive, relevant, and appropriate; and (7) agents' data were congruent with the observations of other knowledgeable observers. The study suggested that quantitatively oriented, retrospective self-assessments may be trustworthy if they are constructed to elicit answers consistent with these seven characteristics. (KC)

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EVALUATING THE TRUSTWORTHINESS OF SELF-ASSESSMENTS

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Introduction

In the mid-1970's Cooperative Extension in Washington State offered an inservice education program in Group Facilitation[1]. The training included 12 days of workshops spread over several months.

To evaluate the program, we relied on the participants' self-assessments of their competencies obtained at the beginning, mid-way through the series and at the end of the training. A summary of self-assessments appeared as in Figure 1.

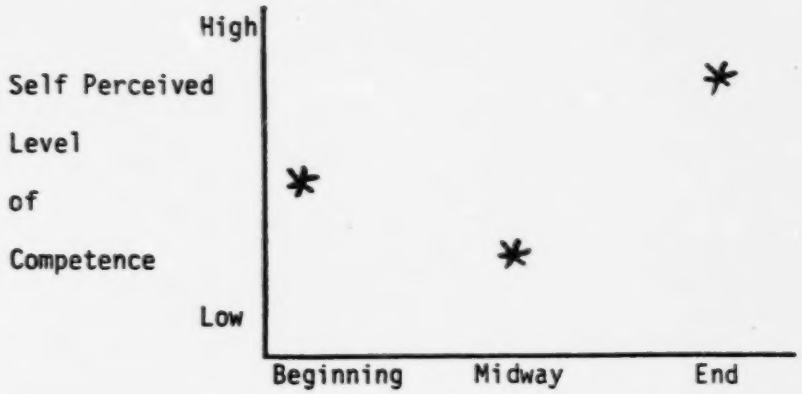


Figure 1. Changes in Self-perceived Level of Competence Through an Extension Inservice Education Program in Group Facilitation

That dip in mid-series scores raised questions about the trustworthiness of self-assessments[2].

Inservice education - adult learning - is so personal and individualistic; evaluations of learning must tap each participant's perceptions of the program's value, that is, the extent to which a program contributed to objectives and outcomes of value to the individual participant.

But how can we catch information about the value of programs to

individuals in a way that is worthy of our trust? We continue to experiment with other self-assessments of adult learning. Recently we tried a retrospective self-assessment with 22 county Extension agents from Western Washington who had participated in a three-day inservice education program in agronomy.

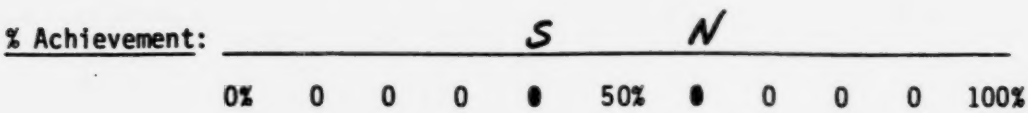
The Technique

At the immediate end of the workshop, each participant was asked to complete a set of instructions for each of the workshop's six objectives[3]:

1. On a Likert-type scale:
   a. Draw an S to show where you started at the beginning of this workshop; and
   b. Draw an N to show where you are now;
2. Write a workshop activity that helped you move from S to N; and
3. Write a learning activity that would help you move from N (if less than 100%) to 100% achievement of that objective.

To illustrate, here's a sample response for Objective I:

Objective I: Understand basic concepts of forage production as related to forage management and quality.



What helped? lecture on forage maturity and digestibility

What next? review plant cell formation and digestibility

Our trust in these results is growing. Here's why.

Testing the Technique's Trustworthiness

First, the average increase in achievement scores, 25% points, was less than the average starting point for this group, 31% achievement. Because of the agents' formal schooling and experience, we expected the agents' average level of proficiency at the beginning of the workshop to be higher on an achievement scale than the degree of change attributed to a single inservice education program of three days. The results supported this expectation.

Second, the range and pattern of S's reflected the range and pattern of the agents' academic preparation in agronomy. Some agents had majored in agronomy at the graduate level; others had completed only supporting courses in agronomy at the undergraduate level. Figure 2 is an illustration from Objective I, related to Forage Production:

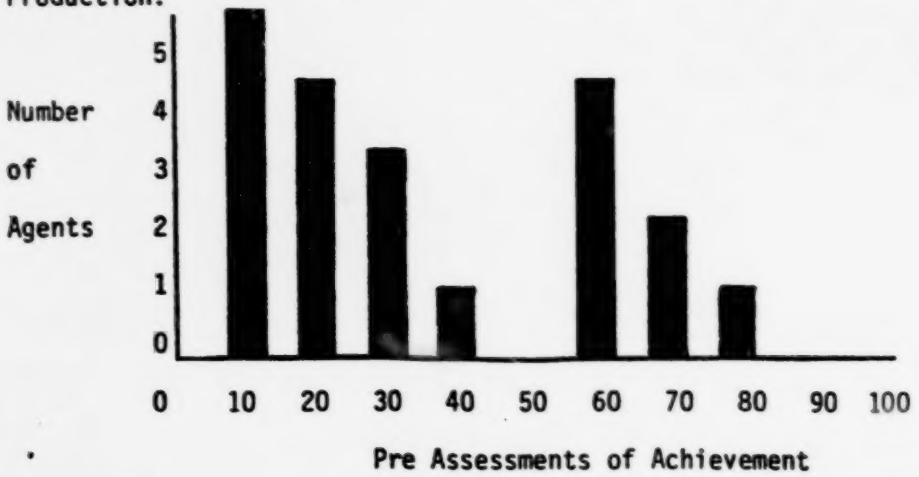


Figure 2. Distribution of S's - Starting Points - for Objective I

Notice the bimodal distribution of starting points. The pattern is consistent with the varying levels of academic training in agronomy among the county agents.

Third, the range of N's on any one objective tended to fit the range of the agents' program responsibilities - job expectations - in agronomic specialities - forage production, turf management, irrigation, etc. This relationship assumes that 100% achievement of an objective for one agent is relative to that agent's program responsibilities and, therefore, may be different from complete achievement for another agent. The agents represented thirteen counties and the level of program responsibility for any single objective varied from county to county.

We observed that, for Objective I, the range did not change.

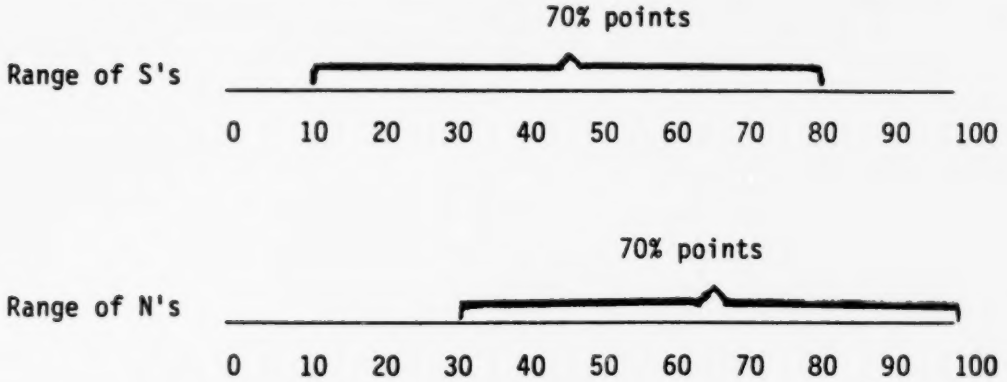


Figure 3. Range of Pre- and Post-Assessments, Objective I

Fourth, the average levels of change across five of the six workshop objectives correlated positively and directly with the amount of program time devoted to each objective (See Figure 4).

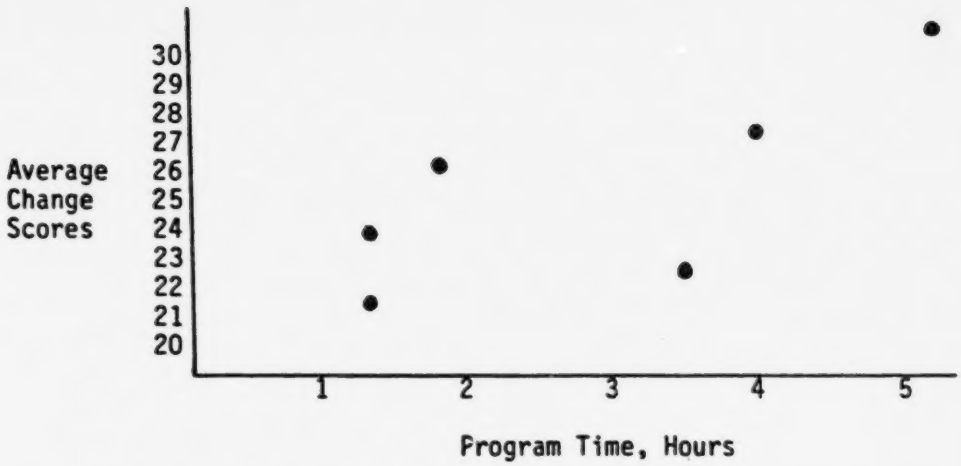


Figure 4. Relationship Between Average Change Scores and Program Time, in Hours

Though the correlation was not statistically significant at the .05 level, the trend was as expected: change was positively related to time on task.

These results also prompted us to recognize another important relationship. Note the point in Figure 4 above 3½ hours; this represented an objective dealing with soil fertility. The average change score was only 23 percentage points, lower than could be expected. This lower than expected level of change was related to an element of doubt introduced into that section of the training; the specialist-instructor reported wide discrepancies in soil test results when the same soil sample was tested by different laboratories. That new, healthy skepticism in some soil test results did not contribute to building agents' self-perceived competence.

Fifth, the descriptions of "what helped?" move agents from S to N were substantive, relevant to the workshop, and well-targeted to the objectives and reflected an accurate recall of the workshop

activities. Listed below are a few illustrations drawn from comments related to Objective I - Forage Production:

What helped?

°Steve's discussion on where meristematic tissue is located on grasses and legumes.

°Stan's tour of plots.

°Having plant samples.

°Questions and answers related to handouts.

°Martha's review of small pasture/animal management systems.

Sixth, responses to the "what next?" question were also substantive, relevant and well-targeted and reflected needs for more training that, sequentially, are more "advanced." Following are examples of "what next?" comments from Objective I:

°More on yield, persistence and management of forages, especially perennial rye grass.

°Study plot data.

°Best forage types for various animals.

°Optimum times to cut various forages.

°Forage preservation techniques.

°Adapting forage management practices to small acreages.

Here are some illustrations from Objective V, on Soil Fertility and Manure Management:

°Economics of lagoon systems.

°Use of sludge on commercial agricultural lands.

°Manure handling near shell fish estuaries.

Seventh, change scores and responses to the "what next?" question were congruent with observations of two administrator-

observers -- one an Extension State Program Leader for Agriculture and the other an Agronomy Department Chair. From the administrators' perspective, a major benefit of the workshop was the specialists' increased appreciation of the agents' concerns for small pasture management and economics of animal waste management in Western Washington. That observation was in keeping with the agents' lower change score on "manure management" and the agents' plea (cited above) for more information on managing livestock wastes in urban and marine environments typical of Western Washington.

In Summary

Seven reasons, then, why we tended to place a higher degree of trust in the agents' retrospective self-assessment of competence are:

1. The average change score was lower than the average assessment of before - workshop competence;
2. The range and pattern of pre-assessments fit the levels of formal education in the subject matter content of the workshop;
3. The range of post-assessments reflected the varying job expectations among the participants;
4. Change across five of the six objectives correlated with time allocated to each objective;
5. Responses to "what helped?" were substantive, relevant to the content of the workshop, appropriate to the objectives and accurate;
6. Similarly, responses to "what next?" were also substantive, relevant and appropriate and, conceptually, would follow this workshop; and

7. Data from agents were congruent with the observations of other knowledgeable observers.

Several of these seven indicators might be viewed, then, as a qualitative test of a quantitatively-oriented, retrospective, self-assessment.

Implications

Adult learning is a very private affair. Evaluations of planned adult education programs can be enhanced by asking participants to assess their own learning.

Our experiment suggests that quantitatively-oriented, retrospective self-assessments may be trustworthy if:

1. Achievement scales are based on behaviorally oriented training objectives;
2. Participants, soon after the training, are asked to locate their current position on an achievement scale for each objective relative to an estimate of an earlier position and relative to their job expectations;
3. Attribution data are gathered about program activities that help explain change in participants' achievement scores;
4. Participants' suggestions for future training flow, conceptually, from training just completed and from their job expectations; and
5. We triangulate participants' perceptions of value with perceptions of other knowledgeables.

In short, retrospective self-assessments merit further analysis, testing, and refinement appropriate to other adult learning settings.

References

1. The inservice education workshops on Group Facilitation included techniques in group development, problem solving, interpersonal communications, and conflict resolution.

2. Guba, Egon and Lincoln, Yvonne S. Effective Evaluation. San Francisco: Jossey-Bass Publishers, 1981.

3. The Agronomy Workshop objectives related to six content areas:
   1. Forage production
   2. Turf grass management
   3. Grain production
   4. Irrigation
   5. Soil fertility and manure management
   6. Weed control

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